SOUTHEAST ALASKA SAC ROE HERRING FISHERY

MANAGEMENT PLAN, 1992

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INTRODUCTION

Commercial herring fisheries occur in Southeast Alaska during the winter when the product is used for bait and during the spring when the product is harvested for sac roe. The sac roe harvest includes the traditional sac roe fishery (purse seine and set gill net) and the newly established spawn-on-kelp pound fishery. This management plan summarizes only the expected harvest and management strategy for the 1992 sac roe herring fishery for Southeast Alaska. A separate management plan for the spawn-on-kelp pound fishery is available at local department offices.

In Southeast Alaska, herring are commercially harvested for sac roe product with purse seine and set gill net gear types, both of which are under the limited entry system. During 1991, 121 set gill net and 51 purse seine permits were fished. The 1991 Southeast Alaska sac roe herring fishery harvested approximately 2,568 tons of herring. A harvest of approximately 4,556 tons is anticipated for the 1992 season. There are four sac roe herring fishing areas in Southeast Alaska consisting of two exclusive purse seine (Lynn Canal and Sitka Sound) and two exclusive gill net (Seymour Canal and Kah Shakes) areas (Figure 1).

GENERAL MANAGEMENT OVERVIEW

Commercial herring fishing regulations are listed in the 1992 Commercial Herring Regulation Booklet. Copies may be obtained at any Department of Fish and Game Office. Staff members listed at the conclusion of this plan are also available to provide further details.

Vessel Check In And Check Out Procedure

The department requests that tenders and fishing vessels check in and out of the fishing areas, with personnel located on the fishing grounds to facilitate timely assessment of herring landings. Operators who plan to transport fish out of Alaska prior to processing must submit a fish ticket before departing the state.

Reporting Procedures for Floating Fish Processors

Operators of floating fish processing vessels will be required to report in person, or by radio or telephone, to the local representative of the department located within the management area of intended operation before the start of processing operations. The report must include the location and date of intended operation. These requirements are specified in regulation 5AAC 39.130 (f).

Announcement of Openings and Closures

Fishery openings and closures will be established by Emergency Order. Announcements will be made on the fishing grounds over VHF radio and by contacting fishermen individually when possible. The VHF radio frequency for receiving these announcements will be indicated on the fishing grounds. Fishermen should expect short notification of opening and closing times. This is necessary to ensure that fishing occurs prior to major spawning activity and to maintain the harvest at desired levels.

The department will monitor the stocks in advance of the expected fishery opening dates. If spawning threshold levels are determined to be met, the fisheries will be placed on a two hour notice prior to the first opening. During the Sitka purse seine fishery the department will try to give the industry 36 hour advance warning of a decision to place the fishery on a two hour notice. However, if spawning is either earlier or heavier than anticipated and waiting 36 hours could result in loss of fishing opportunity, this much advance notice will not be given. During the Kah Shakes gill net fishery the department will give the industry a 12 hour advance notice. This is a change from the past years' practice of first placing the fishery on 36-hour notice. By going to a 12-hour notice the department is attempting to limit the number of vessels on the grounds prior to the start of the fishery. The department feels that large numbers of vessels and increased activity on the spawning grounds may disrupt herring activity and cause them to move and spawn in other areas.

Management Strategy

The management strategy for commercial herring fisheries in Southeast Alaska is based primarily on the abundance of mature herring with acceptable roe quality (approximately 10% or more mature roe). Fishing is not allowed unless a minimum threshold level of mature herring is available for spawning. The "threshold level" is the herring biomass needed to meet minimum spawning requirements. The established threshold levels for the herring sac roe fishing areas are as follows:

1.	Seymour Canal	6,000,000 lbs.	(3,000 tons)
2.	Kah Shakes	12,000,000 lbs.	(6,000 tons)
3.	Lynn Canal	10,000,000 lbs.	(5,000 tons)
4.	Sitka Sound	15,000,000 lbs.	(7,500 tons)

The management strategy also considers total stock biomass, age, growth characteristics, and past spawning success. Biomass estimates are derived from hydroacoustic, aerial and dive surveys of spawning grounds. Age and growth information is obtained by sampling the commercial catch, test fishing, beach seining, and from trawling conducted in conjunction with hydroacoustic surveys.

The allowable harvest is based on a graduated scale that allows for a higher harvest rate as a herring population increases relative to its threshold spawning level. This approach is consistent with the policies of the Alaska Board of Fisheries for maintaining annual harvest rates between 10-20% of the mature herring in excess of established threshold spawning levels. When the spawning stock biomass is equal to the minimum threshold level, a 10% harvest is allowed. The allowable harvest increases an additional 2% for every spawning stock biomass increase of an amount equal to the threshold level, and reaches a maximum of 20% when the population is six times the threshold level.

The percent harvest rate for any multiple of the threshold level from one to six can be estimated from Figure 2, or by performing the following calculation:

$$\text{Percent Harvest Rate} = 8 + [(2) \times \frac{\text{Spawning Population Size}}{\text{Threshold Level}}]$$

The spawning population size and threshold levels are expressed in millions of pounds. The spawning biomass is determined from either spawn deposition sampling conducted during the previous season or current year hydroacoustic surveys. When only spawning ground surveys can be utilized, the estimates include only mature herring that spawned the previous season. These estimates do not account for any mortality of the herring after spawning occurs, nor additional recruitment after spawn deposition surveys are completed. For fisheries where the population estimate is derived acoustically, only those herring that would be expected to contribute to the spawn are included. This is determined by sampling the population for size composition. Currently, spawning ground dive surveys are the primary population estimation method used to manage sac roe herring fisheries in Southeast Alaska.

In Southeast Alaska, herring generally are mature when they reach a standard length of 185 mm (eight inches). Standard length is defined as the distance between the tip of the snout and the hypural plate, the bony plate where the tail fin rays are attached. This length is achieved by some age-3, and most age-4 herring. All herring estimated to be less than 185 mm are not included in the calculation of threshold harvest levels or harvest rates.

Roe Quality

The Alaska Board of Fisheries has approved new regulations authorizing the department to manage commercial sac roe herring fisheries to enhance product quality. The new regulations, read as follows:

5AAC 27.059. MANAGEMENT GUIDELINES FOR COMMERCIAL HERRING SAC ROE FISHERIES. (a) The department may manage commercial herring sac roe fisheries, when adequate information and management programs are in place, to enhance the value of the landed product as follows:

(1) fishing periods may be established by emergency order in areas and during times when sampling has demonstrated, or other factors indicate, that the herring roe content of the catch is expected to be highest;

(2) fishing periods may be established by emergency order in areas and during times when sampling has demonstrated, or other facts indicate, that the catch is composed of the maximum average size of herring available from the stock;

(3) the department shall specify the particular herring fisheries to be managed to enhance the value of the landed product in preseason management plans.

(b) The department may limit herring sac roe fisheries that directly harvest recruit size herring. The department may modify fishing periods and areas to minimize the harvest of recruit size herring during the conduct of sac roe fisheries for post-recruit herring.

For 1992, the department intends to manage both the Kah Shakes and Sitka sac roe fisheries in a manner that enhances the value of the landed product. In general, regulation 5AAC 27.059 allows the department to regulate fishing time and area to ensure the catch is composed of the largest fish with the highest roe content possible, and minimizes the harvest of recruit-size herring. To determine the best time to fish (i.e., highest quality of post-recruit herring) the department will sample pre-spawning herring populations in cooperation with fishermen and trained industry technicians. All test fishing activities must be authorized by department management biologists on the fishing grounds.

GILL NET FISHERIES

The two set gill net sac roe fishing areas in Southeast Alaska are Kah Shakes in regulatory Section 1-F, and Seymour Canal in Section 11-D; however, no fishing will be permitted at Seymour Canal in 1992. A summary of important information for each fishery is shown in Table 1. Fishermen are reminded that

regulations require identification tags, issued by the department, to be placed on one buoy at each end of a herring set gill net.

Kah Shakes

Set gill net sac roe fisheries have occurred in the Kah Shakes area since 1976 (Table 1). Seasonal landings have ranged from 171 tons in 1978 to a high of 3,250 tons in 1983. In 1990, the estimated spawning biomass at Kah Shakes was below the minimum threshold level and no fishery occurred.

In 1991, the spawning distribution of the Kah Shakes herring population shifted from the traditional spawning grounds to the Cat Island area. As a result, the department issued an emergency order changing the registration area to include Cat Island. Approximately 280 tons of herring were harvested at Cat Island before the fishery was moved back to the traditional fishing area at Kah Shakes. Approximately 380 tons of herring were eventually harvested at Kah Shakes.

The department subsequently submitted a regulatory proposal to the Board of Fisheries, in October of 1991, to increase the size of the Kah Shakes registration area to include the spawning area at Cat Island. The Board adopted the department's proposal, which now reads:

> 5AAC 27.110. FISHING SEASONS. (b)(2)(A)): Section 1-F, only that portion south and east of a line from Point Sykes to Twin Island Light to Form Point and north of a line from Foggy Point to Form Point.

In the briefing document supporting the proposal submitted to the Board of Fisheries, the department stated that increasing the size of the Kah Shakes registration area might result in the harvest of other stocks of herring that historically have not contributed to the Kah Shakes spawning population. To account for this, the department proposed increasing the threshold level from 10,000,000 to 12,000,000 lbs. for 1992. The department indicated that the Kah Shakes threshold level might vary between 10,000,0000 and 12,000,000 lbs. in future years, depending on the spawning patterns observed at Kah Shakes and Cat Island.

The 1991 spawning biomass estimate of 20,900,000 lbs. for the Kah Shakes herring population was based on the spawning that occurred at both Kah Shakes and Cat Island. Approximately 11.2 nautical miles of beach received spawn at Cat Island in 1991 resulting in a spawning biomass estimate of 18,500,000 lbs. At Kah Shakes, 3.7 nautical miles of spawn were observed for an estimated spawning population of 2,400,000 lbs. of herring. Using a spawning population of 20,900,000 lbs. and 12,000,000 pound

threshold, the calculation formula discussed earlier allows a harvest rate of 11.5%, or a guideline harvest level of 1,200 tons of herring for the 1992 season.

The relative abundance of herring at Kah Shakes and Cat Island during the 1992 season will be evaluated from hydroacoustic and aerial surveys. Distribution of herring between the two areas may be used to determine fishing time and area. It is not likely that both the Kah Shakes and Cat Island areas will be open at the same time and it is possible that a percentage of the catch will come from each area. If this occurs, sufficient time will be provided between openings to allow for fishing boats to travel between areas.

In past years, the opening dates for the Kah Shakes fishery have ranged from March 20 (1989) to April 8 (1991). Department personnel will initiate aerial surveys of the Kah Shakes/Cat Island area in mid-March. Depending on the timing of herring spawning activity, department vessels and management staff will be on the fishing grounds starting in mid- to late-March and remain there through the completion of the fishery. As in past years, the department will require identification stickers to be placed on set gill net buoys prior to fishing. However, for 1992, identification stickers will only be available at the Ketchikan Fish and Game Office up until the time the Fish and Game vessel, the *R/V Sundance*, arrives on the fishing grounds. Once the vessel arrives at Kah Shakes, buoy identification stickers will be available only from department personnel on the *R/V Sundance*. This change is intended to reduce costs for both the fleet and the department and to minimize disruption of herring on the spawning grounds. Buoy identification stickers will be issued only to valid permit holders with "picture" identification.

The legal amount of gear at Kah Shakes is one 50 fathom net with a minimum mesh size of 2 1/4 inches, and a maximum depth of 120 meshes. If, during the course of the fishery, a sticker or buoy is lost, a replacement sticker must be obtained from the department before fishing is resumed. Regulations require a one hour grace period for nets to be removed from the water following the announced closure time. No gill net may be reset after the closure time. Additionally, the department may open the fishery for one hour or less **without a grace period**. An opening of this nature could occur if, after the initial opening, a small harvest of herring is still required to meet the guideline harvest level.

Seymour Canal

Set gill net fisheries have occurred intermittently in Seymour Canal (Section 11-D) since the fishery was changed from a seine area to a gill net area in 1980. Annual landings during years fished by gill nets have ranged from 339 tons in 1986 to a high of 615 tons in 1981.

Spawning ground surveys of egg deposition conducted in 1991 indicated a mature herring spawning biomass of 4,200,000 lbs. This is below the minimum threshold level of 6,000,000 lbs., hence, no commercial harvest will occur in Seymour Canal in 1992. The department will, however, continue to monitor the status of the Seymour Canal herring stock in 1992. Samples will be taken to determine the age class distribution throughout the spawning cycle, and aerial, skiff, and dive surveys will be conducted to estimate the spawning biomass. The population estimate determined in 1992 will be used to set the harvest level for the 1993 season.

PURSE SEINE FISHERIES

The two purse seine herring areas in Southeast Alaska are in Lynn Canal and Sitka Sound. Commercial fishing will be allowed only in Sitka Sound during the 1992 season. A summary of important information for each fishery is shown in Table 2.

Lynn Canal

The Lynn Canal herring sac roe area encompasses regulatory Sections 15-B, 15-C, and that portion of Section 11-A north of Shrine Island.

The Lynn Canal fishery has not been opened since 1982. Aerial and vessel surveys conducted in the Lynn Canal fishing area during the spring of 1991 indicated that the population is still depressed and well below the spawning threshold level, thus the fishery will not open in 1992. The reasons for the continued low stock level are not known. Aerial surveys of traditional herring spawning areas in Lynn Canal will be conducted in the spring of 1992.

Sitka Sound

Except for the waters of Whale and Necker Bays, the Sitka Sound sac roe fishing area encompasses the waters of Section 13-B north of the latitude of Aspid Cape.

In the spring of 1991, approximately 44.5 miles of beach were recorded as having received herring spawn in the Sitka Sound fishing area. Subsequent spawn deposition surveys provided an estimated spawning population of approximately 47,000,000 lbs. The harvest strategy discussed earlier provides for a 1992 harvest rate of 14.3% of the estimated mature herring stock and a harvest of 3,356 tons.

During the period that a fishery might be expected (March 24 to April 16), herring distribution will be monitored throughout the Sitka area. The areas open to fishing will depend on the distribution of herring stocks and the need to provide for a fishery that will harvest good quality herring. The department anticipates that four-year-old herring will dominate the population.

LIST OF MANAGEMENT CONTACTS

The following ADF&G Commercial Fisheries Division personnel may be contacted regarding this management plan:

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Table 1. Southeast Alaska gill net sac roe herring fisheries information summary, 1976-1991.

	Seymour Canal[1]				Kah Shakes			
Year	Guideline Harvest Level (Tons)	Catch (Tons)	Date Two Hour Notice Was Effective	Opening Dates	Guideline Harvest Level (Tons)	Catch (Tons)	Date Two Hour Notice Was Effective	Opening Dates
1976	200	195		May 9	300	426	March 23	April 2
1977	500	485	May 4	May 9	800	820	March 29	April 1
1978	500	729	May 2	May 8	680	171	March 26	April 4
1979	250	269	May 3	May 3	585	528	March 28	March 29
1980			Fishery Not Open		1,100	1,140	March 25	March 25
1981	600	615	April 28	April 28	1,550	1,840	March 20	March 20
1982			Fishery Not Open		1,700	2,279	March 20	March 26
1983			Fishery Not Open		2,500	3,250	March 23	March 24
1984	375	518	April 20	April 26	2,100	2,182	March 20	March 29
1985			Fishery Not Open		2,300	2,161	March 28	March 29
1986	300	339	May 5	May 10	1,100	1,536	March 29	March 31
1987	419	302	May 1	May 5, 6	1,200	1,440	March 24	March 26, 27
1988	530	586	April 20	April 26-May 1	953	1,087	March 24	March 25
1989	332	547	April 21	April 28	647	592	March 20	March 20, 21
1990	312	359	April 21	April 28-29			Fishery Not Open	
1991			Fishery Not Open		680	660	March 28	April 8,9,10,11

[1] Seymour Canal was purse seine fishing area prior to 1980.

Table 2. Southeast Alaska purse seine sac roe herring fisheries information summary, 1976-1991.

	Juneau[1]-Lynn Canal				Sitka Sound			
Year	Guideline Harvest Level (Tons)	Catch (Tons)	Date Two Hour Notice Was Effective	Opening Dates	Guideline Harvest Level (Tons)	Catch (Tons)	Date Two Hour Notice Was Effective	Opening Dates
1976	750	432 Seine		April 26	780	800	April 10	April 16
		124 Gill Net		April 29				
1977	875	709 Seine		April 19			Fishery Not Open	
		217 Gill Net		April 20				
1978	500	602 Seine	April 19	April 20	250	175	April 4	April 5
	200	346 Gill Net	April 21					
1979	Fishery Not Open				2,000	2,250	April 7	April 12
1980	600	975	April 13	April 26	4,000	4,385	April 4	April 4 & 5
1981	725	761	April 17	April 23	2,700	3,506	March 23	March 24 & 26
1982	375	551	April 30	April 30	3,000	4,363	March 26	March 30
1983	Fishery Not Open				5,500	5,463	March 23	March 26 & 29
1984	Fishery Not Open				5,000	5,711	March 22	March 26, 27 & 28
1985	Fishery Not Open				7,700	7,475	March 24	March 29 and April 1 & 5
1986	Fishery Not Open				5,029	5,443	March 28	April 2 & 8
1987	Fishery Not Open				3,600	4,216	March 23	March 31
1988	Fishery Not Open				9,200	9,573	March 25	April 4 - 14
1989	Fishery Not Open				11,700	11,831	March 23	March 31 - April 8
1990	Fishery Not Open				4,146	3,804	April 4	April 5 & 6
1991	Fishery Not Open				3,200	1,908	March 29	April 10 - April 13

[1] The Juneau fishery was both a gill net and seine area prior to 1980.

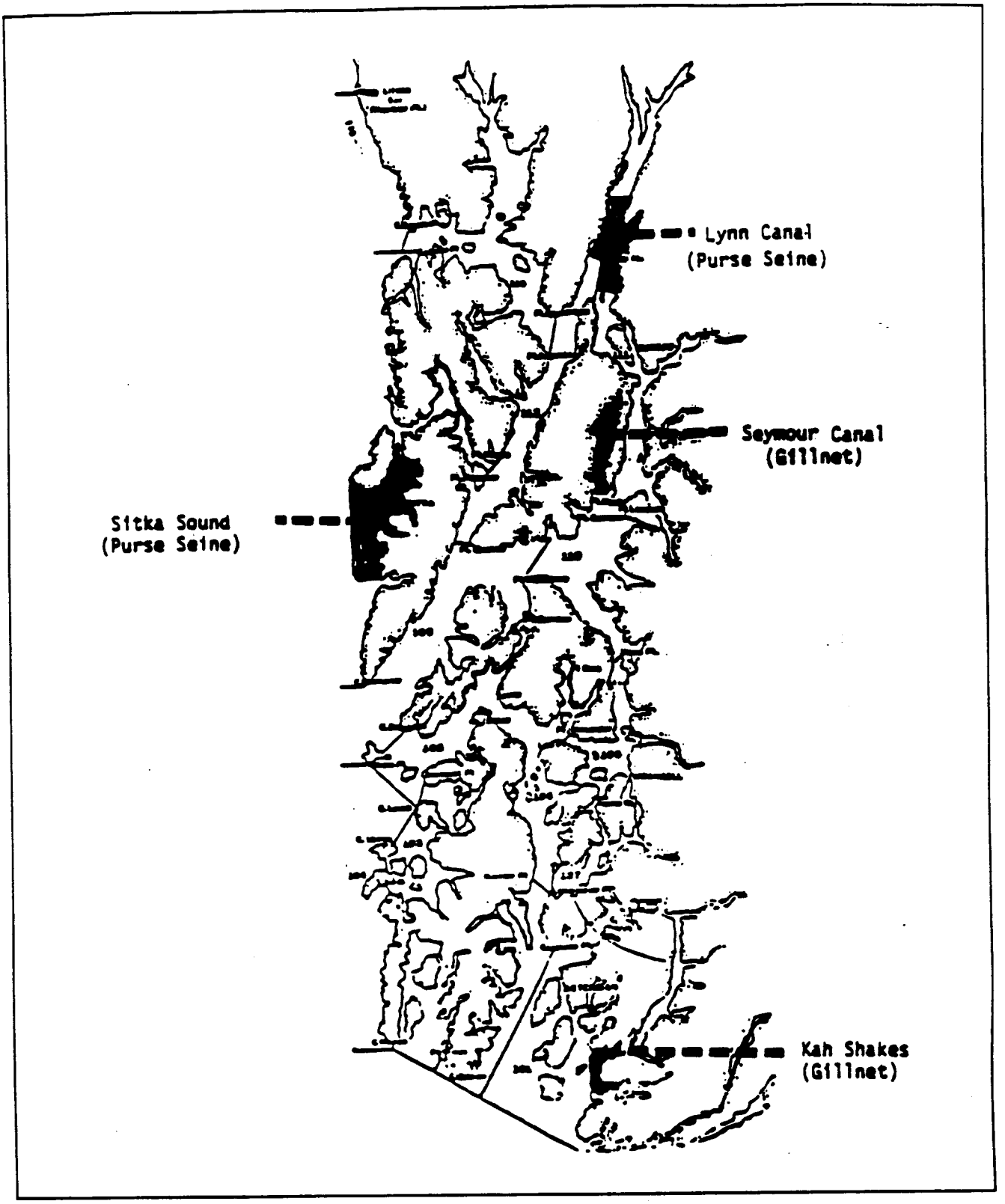

Figure 1. Southeast Alaska sac roe herring areas.

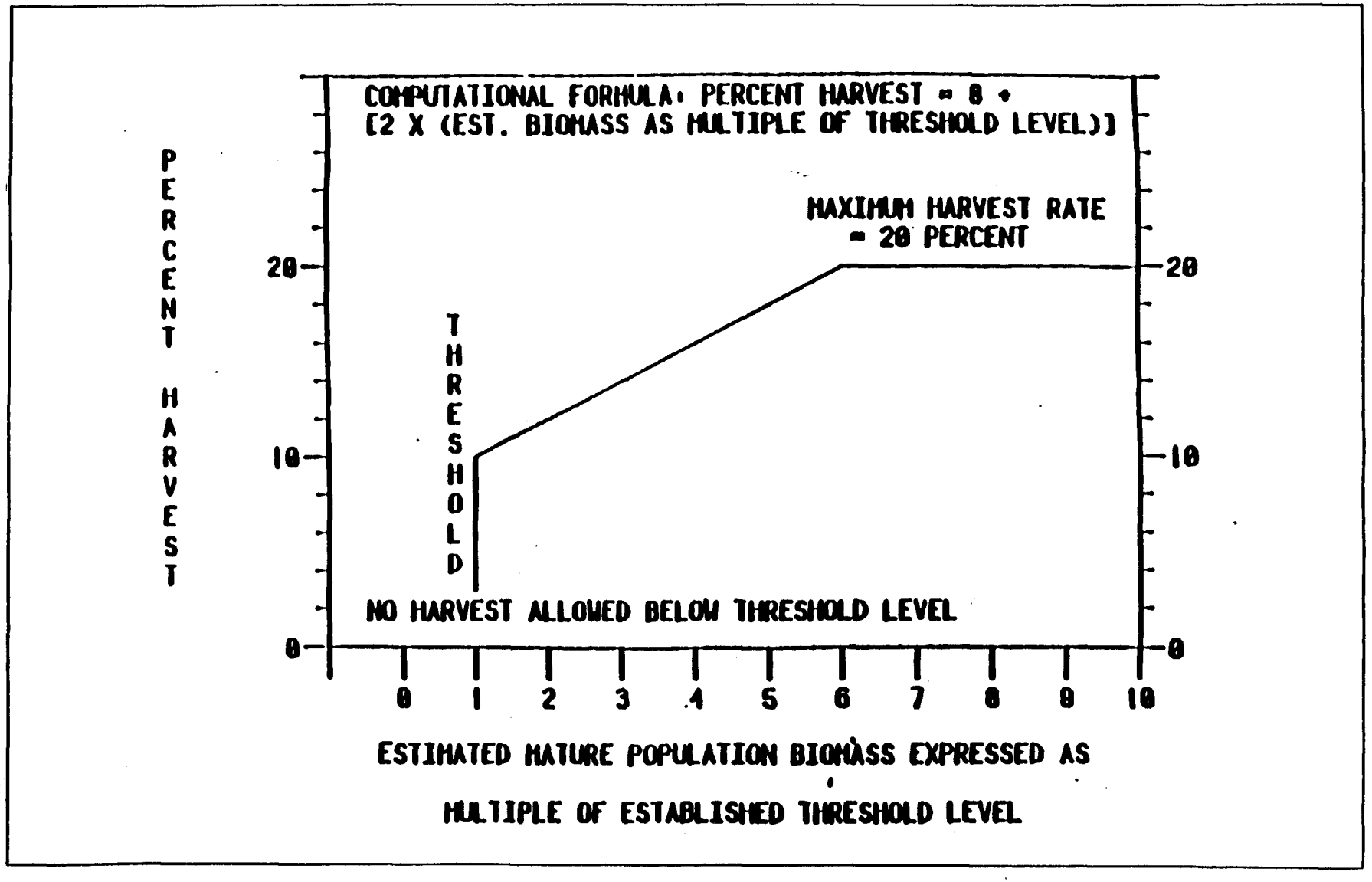

Figure 2. Generalized harvest strategy for Southeast Alaska herring stocks showing allowable percent annual harvest related to estimated biomass of mature stock expressed as a multiple of the established harvest threshold level.